* 1. **Organizing Outcomes of Probability**

Name:\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_

**Lesson Focus: Mathletes will be able to…**

* + Explain how to identify an independent event
  + Determine the outcomes of two independent events
  + Organize outcomes of two independent events using tables and tree diagrams**.**

**Definitions:**

* Independent events
  + The outcome of one event has **no** effect on the outcome of another event
* Sample space
  + All possible outcomes of an experiment
    - Coin: Heads, Tails
    - 6-sided die: 1, 2, 3, 4, 5, 6
* Tree Diagram
  + A diagram used to organize outcomes
  + Contains a branch for each possible outcome of an event

**INVESTIGATE:**

If Nick had two coins in his pocket that were each smaller than a dollar, what are all possible combinations that those coins could be?

How do you know that you found all combinations?

**Example:**

Kristina flipped a coin and and Amy rolled a six-sided die at the exact same time. These two events are called independent events (they are independent because the result of the coin flip doesn’t affect the result of the dice roll).

a) Record the possible outcomes in a TABLE.

 

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 |
| Heads |  |  |  |  |  |  |
| Tails |  |  |  |  |  |  |

b) How many possible outcomes are there?

c) Write the SAMPLE SPACE for this outcome (write each outcome as an ordered pair):

d) What is the probability of throwing a heads and getting an even number?

d) Write the outcomes for coin toss and die roll in a tree diagram

Coin toss Die Roll Outcome

**HUGE QUESTIONS??? HUGE!!!**

Q1 – How do you feel about Tables and Tree diagrams for finding sample space? (on a scale of 1-4)

Q2 – Which method is easiest for you right now?

**TRY :**

Brianna has a spinner that is divided evenly into the colours pink, black, white, and blue (she spins it to choose what color socks to wear each day). Shaunna the fashion police has a spinner with the numbers 0 , 1, and 35. She spins it each morning before school to determine how many fashion tickets she is going to pass out that day. Determine the Sample Space of these events occurring at the same time using:

TABLE METHOD:

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| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Tree Diagram method:

Q. What is the sample space?

Q. What is the probability that Brianna will wear pink socks on the day Shaunna gives out 35 fashion tickets?

Q. What is the probability that Shaunna will give out zero tickets on the day that Brianna is wearing blue socks?

Challenge Q. What is the probability of Brianna NOT wearing pink socks and Shaunna giving out one ticket in a day?

Try this one:

Mrs. Bevan is trying to place students into option classes for grade 8. Most classes are filled up and she only has three options with space left for students. She has only four students left who still need their last option. So…Mrs. Bevan makes two spinners. One has the names of Josh, Jules, Curtis and Asher. The other spinner has the options French, Band and Foods.

1. Use a table to determine the possible Option Combinations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. Use a Tree Diagram to show the possible combinations:
2. What is the probability that Jules will get into Foods class?
3. What is the probability that Josh will get into Foods class?

**YOUR TURN**

Create an AFL probability question similar to the ones we have been working on (you can choose 2 of the following items for your story: a die, spinner, and/or coin). Make up your own story. Trade your story with a few friends for them to try (have them write their answers on a quiz paper – have them put their name on the paper so we can enter them into a draw). Get them to write the sample space using a TABLE and using a TREE DIAGRAM. (make sure you can answer your own question. When your friend is finished the question, please mark it with them – only marked papers will be chosen)